

What is claimed is:

1. A flat display comprising:

2 a substrate;

3 a field emission type electron-emitting source
4 mounted on said substrate;

5 a front glass member opposing said substrate
6 through a vacuum space and having light transmittance at
7 least partially;

8 an electron extracting electrode with an
9 electron passing hole and set away from said
10 electron-emitting source to oppose said substrate; and

11 a phosphor film formed on a surface of said
12 front glass member which opposes said substrate,

13 said electron-emitting source comprising

14 a plate-like metal member with a large number
15 of through holes and serving as a growth nucleus for
16 nanotube fibers, and

17 a coating film formed of nanotubes that cover
18 a surface of said metal member and inner walls of the
19 through holes.

2. A display according to claim 1, wherein

2 said electron-emitting source comprises a
3 plurality of band-like electron-emitting sources
4 arranged parallel to each other,

5 said electron extracting electrode comprises a

6 plurality of band-like extracting electrodes arranged in
7 a direction perpendicular to said band-like
8 electron-emitting sources, and
9 said phosphor film comprises a plurality of
10 band-like phosphor films arranged to oppose said
11 band-like extracting electrodes.

3. A display according to claim 2, wherein
2 said display further comprises a plurality of
3 support ribs vertically standing on said substrate at a
4 predetermined interval,
5 said band-like electron-emitting sources are
6 arranged among said support ribs, and
7 said band-like electron extracting electrodes
8 are supported on said support ribs.

4. A display according to claim 1, wherein said
2 electron-emitting source is fixed to said substrate with
3 an adhesive containing frit glass.

5. A display according to claim 1, wherein
2 said metal member of said electron-emitting
3 source is made of one of iron and an iron-containing
4 alloy, and
5 the nanotubes constituting said coating film
6 are made of carbon and adapted to cover said metal
7 member in a curled state.

6. A display according to claim 5, wherein the
 2 nanotube fibers constituting said coating film are
 3 fibers each with a thickness of not less than 10 nm and
 4 less than 1 and a length of not less than 1 and
 5 less than 100 .

7. A display according to claim 5, wherein
 2 said metal member has a thickness of 0.05 mm
 3 to 0.20 mm, and
 4 said coating film covers the surface of said
 5 metal member and the inner walls of the through holes to
 6 a thickness of 10 to 30 to form a smooth curved
 7 surface.

8. A display according to claim 1, wherein said
 2 metal member has the through holes in a matrix shape to
 3 form a grid.

9. A method of mounting a field emission type
 2 electron-emitting source, comprising the steps of:
 3 fabricating a metal substrate, integrally
 4 having a plurality of band-like plate-like metal members
 5 formed of metal plates arranged parallel to each other
 6 at a predetermined interval and with a large number of
 7 through holes to serve as a growth nucleus for nanotubes
 8 and a pair of holding members opposing each other

9 through the band-like plate-like metal members and
10 adapted to hold two ends of each of the band-like
11 plate-like metal members,
12 forming a coating film, formed of nanotube
13 fibers, on a surface of the metal substrate and inner
14 walls of the through holes,
15 adhering the band-like metal members to a
16 surface of a glass substrate, with a tensile force being
17 applied to the metal substrate formed with the coating
18 film, between the holding members, and
19 separating the holding members away from the
20 metal substrate, and unloading a glass substrate on
21 which a field emission type electron-emitting source has
22 been mounted.

10. A method according to claim 9, wherein the
2 step of adhering comprises the step of adhering the
3 band-like metal members on the glass substrate while
4 plate-like metal attaching metal fixtures, to which two
5 ends of the metal substrate are fixed, are heated to
6 400°C to 600°C.